results of the Nansen and the Jackson-Harmsworth expeditions were available as a guide to further work, but he had no intention of abandoning his endeavour to attain a high latitude on the American side. This summer he visited Cape York in a whaler, and succeeded in taking on board and transporting safely to New York a vast mass of nickel-iron weighing about 100 tons. This block is reputed by the Eskimo to have fallen from heaven, and it bears all the external appearance of a meteorite, while it shows the characteristic Widmannstätten figures when the surface of the polished metal is etched with nitric acid. The transport of the block was a brilliant engineering feat, as the only means available for getting it brought on board and lowered into the hold were hydraulic jacks and timber stagings. We understand that the great meteorite is still the property of Mr. Peary, and has not yet been acquired by any museum. It is not to be confounded with the masses of telluric iron described by Baron Nordenskiöld.

Mr. Peary's description of the inland ice was extremely graphic, and illustrated by a superb series of coloured slides, prepared from photographs selected from his collection of over 4000. The movement of the surface he believes to be due as much to the drift of snow by the wind as to the discharge of glaciers, summer melting and evaporation taken together. The snow-dunes in parts convert the inland ice into a veritable Arctic Sahara. In addition to collections of the restricted but brilliant flora of the ribbon of land freed from snow in summer along the coast of Greenland, much valuable scientific work was done. Ethnology is the branch of science which has perhaps been most advanced. The Northern Eskimo, the Arctic Highlanders of Sir John Ross, have been most thoroughly studied and photographed. The entire tribe numbers some 250 individuals, every one of whom is personally known to Mr. Peary. They have lived quite untouched by civilisation, and free even from communication with the Southern Eskimo. They are of good physique and, while far from attractive in appearance or customs, they possess many good qualities.

Mr. Peary, as the result of his experience of these people and of the conditions of Arctic travel, has formulated a scheme of progressive exploration which he will put into practice next year. Equipped by funds that are already provided, he proposes to take a ship up to Sherard Osborn Fjord in latitude 82°, taking two other white men and a picked group of eight or ten Eskimo with all their belongings. They will send the ship back and form a camp, advance by the autumn moonlight along the coast, and winter as far north as possible. In the following year the northward march would be resumed until the furthest point of land was reached. This he hopes to find in 85°, if not even further north. From the camp at that point as a base a rapid journey must be attempted over the sea ice to the pole and back, leaving most of the Eskimo behind. If the first year did not afford an opportunity the next year might, or at least the third. Mr. Peary's principle is to wait for favourable conditions, and he is prepared to remain at his most northerly camp five years if necessary. In the course of that time he believes that a door to the pole will open, or can be pushed open. This principle has always been approved by the leading Arctic men, and recent experience has amply confirmed the importance of not struggling against obstacles when it is possible, by skill or patience, to take advantage of natural aids.

Mr. Peary's project has in it nothing sensational; he holds no prospect of startling discovery before the public; and the fact that his expedition is already provided for, obviates any necessity for making an appeal for financial support. The enthusiastic character of his reception by a large and deeply interested audience can only be paralleled in recent years by the greeting accorded to Dr. Nansen.

NOTES.

It has been decided that the statue of Lavoisier, for which international contributions have been subscribed, shall be erected on the Place de la Madeleine, Paris. The Municipal Council of Paris have sanctioned this site.

M. Ditte, professor of chemistry at the Sorbonne, has been elected a member of the Section of Chemistry of the Paris Academy of Sciences, in succession to the late M. Schützenberger.

Prof. F. R. Japp, F.R.S., will deliver the Kékulé Memorial Lecture at the Chemical Society next Wednesday evening, December 15.

At the next meeting of the Royal Photographic Society on Tuesday, December 14, Prof. Gabriel Lippmann will read a paper on "Colour Photography." The meeting will not be held in the usual rooms at Hanover Square, arrangements having been made for it to take place in the theatre of the Society of Arts; a large gathering is anticipated. Non-members of the Royal Photographic Society will require admission tickets, which can be obtained on application to the Secretary at 12 Hanover Square.

We regret to see the announcement that Prof. Winnecke, the distinguished astronomer, died on Friday last at Bonn.

Lord Strathcona and Mount Royal, High Commissioner for Canada, will preside at Prof. Roberts-Austen's lecture on "Canada's Metals" at the Imperial Institute next Monday evening (December 13). The lecture, which will be fully illustrated by experiments, is open to the public, without tickets.

It has been resolved to hold an international fisheries exhibition in Aberdeen in the summer of 1899.

A skeleton of the moa was sold at Mr. J. C. Stevens' auction rooms on Tuesday, the price reached being forty-eight guineas. The bird was set up by Captain F. W. Hutton, F.R.S., from bones obtained at Enfield, New Zealand. The deposits in which these *Diornis* remains were found was described by Dr. H. O. Forbes in Nature of March 3, 1892 (vol. xlv. p. 416).

A general meeting of the Aeronautical Society of Great Britain will be held on Thursday, December 16, at 8 p.m., at the Society of Arts, John Street, Adelphi, W.C. Major-General Sir Charles Warren, G.C.M.G., K.C.B., will occupy the chair. The following gentlemen and others have kindly arranged to exhibit apparatus:—Mr. Pilcher, a soaring machine and an oil engine; Major Moore, a model flying machine; Mr. E. S. Bruce, balloon signalling apparatus; Captain Baden-Powell, kites and a gliding machine; the Society, cinematograph of flying birds.

When a large number of crickets are chirping at night in a field, they do so synchronously, keeping time as if led by the wand of a conductor. Prof. A. E. Dolbear says, in the *American Naturalist*, that the rate of chirp seems to be entirely determined by the temperature, and this to such a degree that the temperature can be estimated when the number of chirps per minute is known. At a temperature of 60° F. the rate was found to be 80 per minute, and at 70° F. it was 120 a minute; this gives a change of four chirps per minute for each change of one degree.

The following are among the lecture arrangements at the Royal Institution before Easter:—Prof. Oliver Lodge, six Christmas lectures (specially adapted for young people) on the principles of the electric telegraph; Prof. E. Ray Lankester, eleven lectures on the simplest living things; Prof. Dewar, three lectures on the halogen group of elements; Prof. J. A. Fleming, five lectures on recent researches in magnetism and diamagnetism; Prof.

Patrick Geddes, three lectures on Cyprus. The Friday evening meetings will begin on January 21, when a discourse will be given by the Right Hon. Sir John Lubbock, Bart., M.P., on buds and stipules. Succeeding discourses will probably be given by Prof. C. Lloyd Morgan, Mr. A. A. Campbell Swinton, Dr. J. Hall Gladstone, Prof. L. C. Miall, Captain Abney, Prof. T. E. Thorpe, Mr. James Mansergh, the Dean of Canterbury, Prof. Dewar, and others. Lord Rayleigh will deliver lectures after Easter.

AT the meeting of the General Medical Council last week, the Committee entrusted with the duty of preparing the new edition of the British Pharmacopœia, submitted copies of their draft of the work for the approval of the Council. The estimated amount to be expended on its production will be about 6000*l.* The Committee suggest that the price of the volume might suitably be seven shillings and sixpence, but the power of actually fixing the price rests with the Commissioners of the Treasury. In order that the Pharmacopœia might be issued early next year, the Committee recommended that it be delegated to the Executive Committee to adopt the fully corrected work as The British Pharmacopœia, 1898, to communicate with the Commissioners of the Treasury on the question of price, to publish the Pharmacopœia, and to make the usual legal announcement of publication. The report of the Committee was adopted.

THE difficulties in the way of a permanent establishment of the Essex Field Club's County Museum of Natural History have been very largely removed by Mr. Passmore Edwards' munificent offer to build a museum at West Ham (adjoining the new Technical Institute) to contain the Club's collections, on condition that the building is maintained by the Corporation of West Ham as a permanent institution, and that it is opened on Sundays. The Town Council have gratefully accepted Mr. Passmore Edwards' offer, and arrangements are being entered into whereby the annual upkeep of the museum will be provided for by a joint fund subscribed by the Corporation and the Club. The task of gathering the collections, and the scientific control of the same, will remain with the Club. The museum is intended to illustrate the county of Essex generally, while the Club's smaller museum in Queen Elizabeth's Lodge, Chingford, will be confined to objects from Epping Forest—the two institutions being mutually dependent and illustrative, the one of the other. Further details will be issued when the negotiations are completed.

AT the last meeting of the Council of the Australasian Association for the Advancement of Science, the following gentlemen were proposed as vice-presidents of Sections:—Section A (astronomy, mathematics, and physics), Prof. A. M'Aulay and Prof. T. R. Lyle; Section B (chemistry), Mr. R. T. Bellemey, Prof. E. H. Rennie, and Prof. Orme Masson; Section C (geology and mineralogy), Mr. W. Howchin and Mr. R. L. Jack; Section D (biology), Prof. J. T. Wilson, Prof. C. J. Martin, and Mr. J. J. Fletcher; Section E (geography), Mr. P. G. King and Mr. A. C. Macdonald; Section F (ethnology and anthropology), Prof. W. Baldwin Spencer, Mr. Thos. Worsnop, and the Rev. Lorimer Fison; Section G (economic science and agriculture), Dr. H. N. MacLaurin, Mr. R. Teece, Mr. W. M'Millan, Mr. Sydney Smith, Mr. E. M. Shelton, and Mr. W. Farrer; Section H (engineering and architecture), Mr. H. Deane and Prof. W. H. Warren; Section I (sanitary science and hygiene), Dr. D. Hardie, Dr. J. W. Springthorpe, and Dr. J. Ashburton Thompson; Section J (mental science and education), Dr. A. Garran, Dr. R. N. Morris, and Mr. R. H. Roe. A large number of additional papers were announced as having been promised to the various Sections.

THE Meteorological Council have published a very useful volume of Rainfall Tables for the years 1866–90, based upon observations at 492 stations, selected so as to show as nearly as possible the general distribution of rain over the United Kingdom. The present volume has been prepared in connection with the previous set of tables for 1866–80 published in the year 1883, and while it includes in the general averages the monthly and annual means of the earlier series, it contains the separate monthly and yearly values for each of the years 1881–90, and of any years prior to 1881 which were not previously published. To facilitate the use of the tables, references to them are arranged both under counties and stations. There is no discussion of the observations, but the averages for the years 1881–90 are shown upon three maps, together with the main watersheds and the catchment basins of the principal rivers, and these exhibit the general distribution of the rainfall very clearly. The whole work has undergone careful supervision, and will be very valuable as a standard of reference in this branch of meteorological statistics.

THE meteorological observations made at the Rousdon Observatory, Lyme Regis, during last year, have been brought together by Mr. Cuthbert E. Peek, and published in the form of a Report. The observatory is a second order station of the Royal Meteorological Society. Mr. Peek not only describes the meteorological conditions and statistics of the different months of the year, but also records the results of a number of experiments to compare rain-gauges and anemometers of different kinds. A daily comparison of the actual weather experienced at the observatory with the forecasts of the Meteorological Office showed that, taking wind and weather together, eighty-eight per cent. of the forecasts were correct. Of wind alone, ninety-one per cent. of the forecasts were fulfilled; and of weather, ninety-two per cent. The most trustworthy forecasts were in August, there being only one day doubtful during that month. The lowest percentage of trustworthy forecasts was in January, as might be expected from the remarkable barometric movements of that month. A comparison of forecasts and actual wind and weather for the thirteen years 1884–96, shows that the percentage of successes was only fifty-nine in 1884, but in the following years it reached seventy per cent., and has been increasing year by year ever since. The best forecasts seem to have been made in 1894 and 1895, in which years eighty-nine per cent. of the predictions were fulfilled.

DR. VAN DER STOK, the Director of the meteorological and magnetical observatory of Batavia, has published a very comprehensive atlas, containing a large amount of information on the winds, weather, currents, &c., of the East Indian Archipelago. Some idea of the magnitude of the work may be formed from the fact that it extends to more than two hundred large folio pages of tables and charts, and that it embraces the whole area between the western coast of Sumatra and the northern coast of New Guinea. For forty different points of this area the meteorological conditions have been deduced for each month and for seasons, while monthly wind-roses have been drawn for the day and night separately. The work is divided into three parts: (1) observations made on ships; (2) rainfall and wind observations made on land; and (3) data relating to tides. The materials made use of in the first part have been extracted from many hundreds of log books kept on Dutch men-of-war during the years 1814–1890, and were obtained from the Ministry of Marine at the Hague for the purpose of this discussion. The work is a valuable contribution to both the physical geography and meteorology of that portion of the globe, and will be of great practical use to navigators.

THE first occasion upon which Röntgen rays were applied to surgical diagnosis was referred to by General Maurice in the course of a few remarks made at the close of a lecture delivered at the Royal Artillery Institution, Woolwich, by Mr. W. Webster. The credit of having first used the rays to determine whether a patient (who had severely injured his elbow) was suffering from a fracture or a dislocation, has hitherto been given to Mr. Howard Marsh. It appears, however, that Mr. Marsh really only recommended the application of the rays to the case, and that the actual photograph was taken by Mr. Webster, who had been working for some time with Mr. T. Moore. The photograph showed distinctly that the injury was due to a dislocation, and was not a fracture at all. The diagnosis having been established, the operation of putting the arm in its place was performed by Captain Salvage, an army surgeon. Mr. Howard Marsh described the case in the *British Medical Journal;* but, says General Maurice, "as he was simply dealing with it as a scientific case, the names of Mr. Webster and Mr. Moore were, according to professional etiquette, necessarily omitted." The lecture from which we gather these facts appears in the *Proceedings* of the Royal Artillery Institution (No. 5, vol. xxiv., 1897).

THE Annual Report for 1896 of the State Board of Health of Massachusetts has just been issued. The work of the now historic series of experimental filters has been recorded as usual, and there is but little to add to the deductions already published in previous years regarding their respective efficiency in the purification of water. The presence of iron in public water supplies has been engaging the attention of the Board, and experiments have been started which, as far as they have gone, indicate that this evil may be remedied by filtering water through a fine filter of coke breeze, which is stated to practically remove all the iron. Another important matter which has been investigated is the purification of manufacturing refuse; such factory-sewage may contain several times as much organic matter as an equal volume of domestic sewage, and is extremely difficult to deal with; in many cases the chemicals used in manufacturing processes being such as would destroy nitrification if the sewage were applied to an ordinary sewage filter. The dissemination of typhoid fever through the use of polluted water in ponds in the vicinity of so-called "picnic groves"—places of summer resort brought within easy reach of large cities by the extension of electric railways—has also been carefully inquired into, and the sanitary conditions of a large number of such resorts and their water-supplies have been investigated. Other matters dealt with in the Annual Report are the production and use of diphtheria antitoxin; an experimental inquiry as to the diagnosis, genesis and diffusion of malaria; examinations of sputum and other material suspected of containing tubercle bacilli, &c.

AT the meeting of the Chemical and Metallurgical Society of South Africa, held on October 16 last, some interesting data on dry crushing and direct cyaniding of Rand ore were given by Mr. Franklin White. Great things were expected of this method of treatment by some metallurgists a year or two ago, but its progress has been far from rapid, largely owing, no doubt, to the comparatively low percentage of gold extracted by its use. According to Mr. White, however, 917 tons of oxidised ore from Botha's Reef, treated recently, yielded 65·77 per cent. of its gold, the tailings containing 2·708 dwts. per ton. The only preparation of the ore was to pass it through a Gates crusher, after which nearly 20 per cent. remained on ½-mesh screens. Experiments seem to show that if the material had been passed through ⅛-mesh screens, about 76 per cent. of the gold would have been extracted in one operation. About 1000 tons of pyritic ore from the Village Main Reef were also experimentally treated with excellent results; one charge giving a theoretical extraction of 89·25 per cent., as deduced from the difference in the assays before and after treatment. The cheapness and simplicity of the process is much in its favour. In another paper read at the same meeting, Mr. Wilkinson estimated the present total costs of twenty-nine Rand outcrop mining companies as averaging only about 26*s.* per ton for mining, milling, development, &c., or about 4*s.* per ton less than in 1896, when the native wages were higher. A further reduction in cost of 4*s.* or 5*s.* per ton would be accompanied by an enormous increase in the profits. The life of the gold field is estimated at fifty years, and its average yield during that period at about 18,000,000*l.* per annum.

IT is stated in *Engineering* that a company of considerable importance and with an influential board has just been formed in Sweden for the purpose, principally, of exploiting, through electric transmission, the vast unused power of the famous Trollhättan waterfalls, situated at some distance from Gothenburg, Sweden. The new company is to take over Dr. de Laval's waterfalls and property at Trollhättan, a carbide manufactory at Okan, with turbines and other installations, the Edenäs waterfall in Upper Lulea, and certain of De Laval's patents and inventions. There are in both places considerable areas of land, while the water-power at Trollhättan is estimated at 220,000 horse-power, and that at Edenäs at 100,000 horse-power. There is consequently both power and space enough for industrial installations on a large scale. It is intended to build a tunnel at Trollhättan, which is to receive the water above the falls in question (for there are others above it, already partly utilised) just above the "King Oscar Bridge," through which the tunnel will lead to a power station below the "Hell Fall." It is proposed to take some 20,000 to 30,000 electric horse-power through this tunnel. Of this power the company proposes as soon as possible to make available 10,000 horse-power, of which half has already been let to a well-known electrical engineer for a period of fifteen years. Of the 3000 horse-power (effective) at Okan, a portion is already being used for the manufacture of carbides.

A SURVEY of the conditions of artificial flight, and the experiments which have been made in connection with it, is contributed to the current number of *Science Progress* by Prof. G. H. Bryan, F.R.S. It is pointed out that every one of the conditions for successful flight has been fairly satisfactorily dealt with by various experimenters; and it only remains to embody them all in a single machine. The directions in which the solution of the problem should be sought are thus summarised by Prof. Bryan:—"If any experimenter can so thoroughly master the control of a machine sailing down-hill under gravity as to increase the size of the machine and make it large enough to carry a light motor, and if, further, this motor can be made of sufficient horse-power, combined with lightness, to convert a downward into a horizontal or upward motion, the problem of flight will be solved. The first flights need not be long—a hundred yards, rising, say, twenty or thirty feet above the ground, will be sufficient; all else will be simply a matter of improving on the original model, and once success is assured workers will not be wanting. Another promising direction for success lies in an elaborate and exhaustive investigation of balance and stability, such as would allow of the safe use of motor-driven machines too large to be controlled by mere athletic agility. This might partially be acquired by experiments with models, gradually increasing in size till they were capable of carrying a man and a motor. But if the future development of artificial flight is not to continue a repetition of the chapter of accidents by which naval architects gained their theoretical knowledge, there is abundant work for mathematicians in reducing the conditions of stability of aerial machines to a matter of pure calculation. One thing is certain, till this is done designs of large air-ships for the wholesale transport of passengers, officers and cargo are not of the slightest value; their designers would do better to study mathematics, and help in the heavy work of calculation still requiring to be done."

FOR the purpose of testing whether change of chemical structure ever results in change of weight, Landolt carried out a number of experiments in the years 1890-92. Using a variety of reactions, he made a careful series of weighings, both before and after chemical combination, of substances sealed in glass tubes, but the results were inconclusive. In three reactions with silver sulphate and ferrous sulphate, producing silver and ferric sulphate, the apparent loss of weight was, on the average, more than nine times as great as the probable error of weighing, and a similar apparent loss was indicated as the result of six reactions between iodic acid and hydriodic acid. In some other reactions, however, the observed change of weight was sometimes positive and sometimes negative. A similar set of weighings for another silver reaction closely related to the one used by Landolt have now been made by Fernando Sanford and Lilian E. Ray, and are described in the *Physical Review* (October). The reaction used was the reduction of silver from an ammonia solution of the oxide, by means of grape sugar. The weighings show greater irregularities than those of Landolt, but they are still accurate enough to justify the authors' conclusion that the reaction used by them was unaccompanied by any such change of weight as was observed in the similar reaction studied by Landolt.

THE September number of *Terrestrial Magnetism*, the publication of which has been unavoidably delayed, contains, among other contributions, a paper "Ueber die Fehler bei Erdmagnetischen Messungen," by H. Wild, and a translation of Prof. Max Eschenhagen's paper "On Minute, Rapid, Periodic Changes of the Earth's Magnetism," already noted in NATURE.

A COPY of an inaugural address on "Advances in Biological Science during the Victorian Era," recently delivered by Mr. Isaac C. Thompson as president of the Liverpool Biological Society, has been sent to us. The address is an instructive review of the most prominent biological work of the past sixty years, and the nature of it shows that the Liverpool Biological Society ranks high among the scientific bodies of the city.

MR. ALFRED HARKER'S excellent little guide to the study of rocks in thin slices under the microscope, published under the title "Petrology for Students" by the Cambridge University Press, has reached a second edition. The book has been revised throughout, and more attention has been given to American examples, at least among the igneous rocks. No better introduction to the study of petrology could be desired than is afforded by Mr. Harker's volume.

THE Essex Field Club will publish about Christmas, as one of their "Special Memoirs," a volume on the "Mammals, Reptiles and Fishes of Essex," by Dr. Henry Laver, one of the Vice-Presidents of the Society. Taken in conjunction with Christy's "Birds of Essex," issued by the Club in 1891, it will afford a complete guide to the vertebrate fauna of the county. The work will be illustrated by original drawings by Major Bale, of Colchester, and Mr. H. A. Cole, of Buckhurst Hill, depicting some of the more interesting species and their haunts in the county.

THE magnetic observations made at 509 places in Asia and Europe during the period 1867-1894, by Dr. H. Fritsche, Emeritus Director of the Russian Observatory at Pekin, have been brought together and published as a pamphlet in which the whole of the MS. is reproduced in facsimile. The first part of the pamphlet deals with the formulæ used in the calculation of horizontal intensity, and following it are tables showing the magnetic elements at 509 places in Europe, Siberia, and China, the longitudes and latitudes of the places being given, and also the dates of observation. Magnetic anomalies are discussed, and two local anomalies—one near the island of Ioussar-oe in Finland, and another near Moscow, are described in detail, and illustrated by three maps.

WITH reference to the note on p. 59 of our issue of November 18, as to the storm signals used by various maritime countries, which was based upon information contained in the U.S. Pilot Chart of the Pacific Ocean for November, we have received a note from Admiral Capello pointing out that, in addition to the use of flags of the Commercial Code and occasional semaphoric signals for the purpose of giving notice of the state of the weather between the Bay of Biscay, Madeira and Gibraltar, to passing vessels that may require it, the drum and cone signals adopted by the late Admiral FitzRoy are regularly hoisted at the semaphores to notify the probable approach of stormy weather.

THE additions to the Zoological Society's Gardens during the past week include a Black-handed Spider Monkey (*Ateles geoffroyi*, ♀) from Central America, presented by Mr. F. Colsell; two White-naped Weasels (*Pœcilogale albinucha*) from South Africa, presented by Mr. W. Champion; two Flat-backed Terrapins (*Cyclemmys platynota*) from Johore, Malay Peninsula, presented by Mr. S. S. Flower; two Chameleons (*Chamæleon vulgaris*) from North Africa, presented by Mr. Horace Dibley; two Ring-tailed Coatis (*Nasua rufa*), a Kinkajou (*Cercoleptes caudivolvulus*), a Punctated Agouti (*Dasyprocta punctata*), a Globose Curassow (*Crax globicera*) from British Honduras; two Vervet Monkeys (*Cercopithecus lalandii*, ♂ ♀) from South Africa, deposited; two Scaup Ducks (*Fuligula marila*, ♂ ♀), European, purchased.

DR. C. BÖRGEN asks us to state that in his letter on "The Law of Divisibility," which appeared in NATURE of November 18 (p. 54), he should have written $\Sigma(a_{v+a-1}$ instead of $\Sigma(a_{v-a+1}$.

OUR ASTRONOMICAL COLUMN.

METEORS (GEMINIDS).—The interest awakened by the recent expectation of a brilliant return of the Leonid meteors may induce many to make observations of other showers. It may be well, therefore, to remember that from the 9th to the 12th inst. the fairly good shower of the Geminids takes place. The radiant point is situated near Castor in R.A. 7h. and north declination 32°. In the years 1885 and 1892 there were remarkably good displays.

o CETI (MIRA).—In this column last week reference was made to the brightness of "Mira" near its maximum. Further observations made at the Solar Physics Observatory, South Kensington, show that, as at previous times, the light curve of this star is subject to fluctuations near maximum, but the star is still about the third magnitude, being considerably brighter than γ Ceti (3·38 N.O.U.). Only visual observations of the spectrum have been possible in consequence of the troubled state of the weather, which has not allowed of the long exposures necessary to secure the violet portion of the spectrum; the visual observations show the same bands as recorded by Sir Norman Lockyer at Westgate in 1888 (NATURE, vol. xxxviii. p. 61). This year the star will be well situated for observation for a considerable time after its brightest period, before being lost in the twilight, as it is now on the meridian about 9.30 p.m. We hope later to be able to give some additional facts as to the change which takes place in the invisible portion of the spectrum in passing from maximum to minimum.

THE COMPANION OF SIRIUS.—Prof. Burnham, using the 36-inch Lick refractor, was the last to observe the companion of Sirius before its perihelion passage. The observation was by no